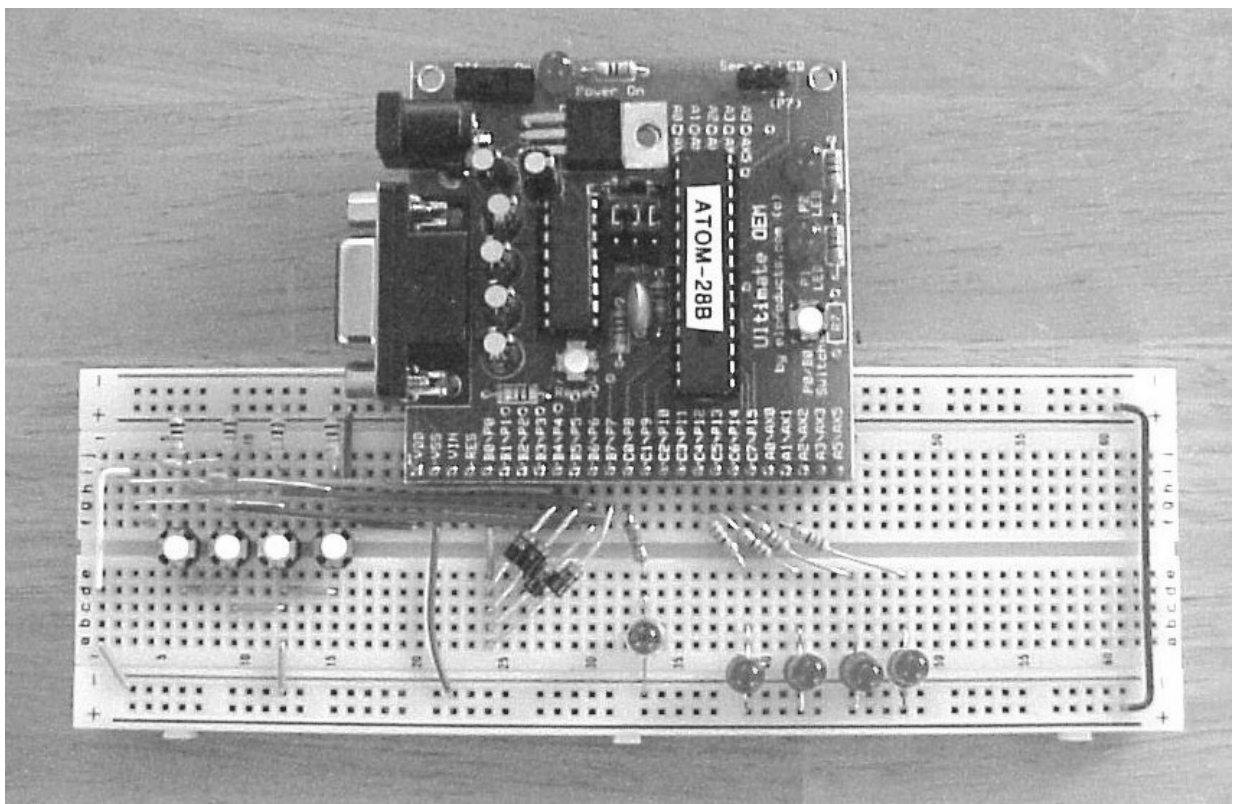


Chapter 17 – External Interrupt on P0

Description

This final project will definitely be useful to the Atom user. The Atom offers all the PIC features as mentioned earlier via easy to implement commands. This project shows how easy it is to use the external interrupt (EXTINT interrupt) in Atom Basic. The external interrupt is at pin P0 that is internally connected to the PortB B0 PIC pin. This interrupt is probably the most useful and one of the easiest to use and understand. This project uses that interrupt in a way many beginners would not have thought of, as a multiplexed interrupt.



The hardware connections tie several inputs to the P0 pin thru diodes so different I/O pins can activate the external interrupt. In fact the project has four switches connected to the P4 thru P7 pins and all of them connected to the P0 pin thru diodes. When a switch is pressed the Atom program is interrupted from what it was doing and reads the P4 to P7 ports to see which switch was pressed. Then it lights the LED(s) that line up with the switch position(s) to show which switch or switches were pressed. While all this is going on, the Atom flashes a separate LED in the main loop to represent other functions that can happen while waiting for the interrupt to occur. The picture on the previous page shows the setup on the breadboard.

Hardware Setup

The schematic shows the connections for this project. The four switches are tied to P4 thru P7 with a pull-up resistor to Vdd (5 volts). All the switches are connected to the P0 external interrupt pins thru the diodes. The diodes have the anodes tied to the B0 pin and the cathode connected to the switches. This allows the B0 pin to see a low (0.7v) signal when a switch is pressed. The LED's that indicate which switch was pressed are connected to the C4 thru C7 pins. The LED connected to the C0 pin is the continuously flashing LED in the project picture.

